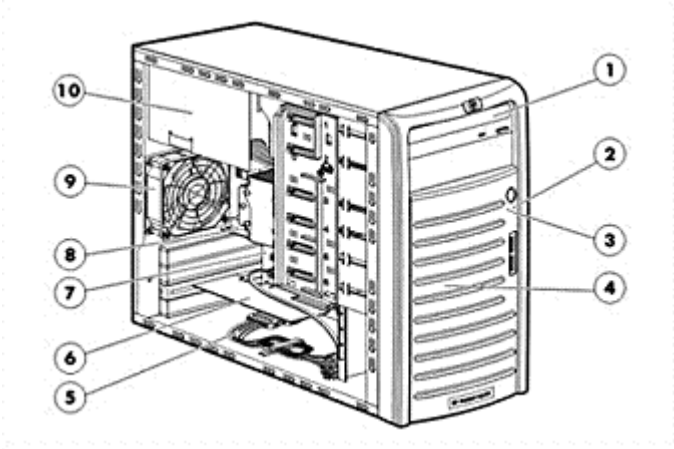
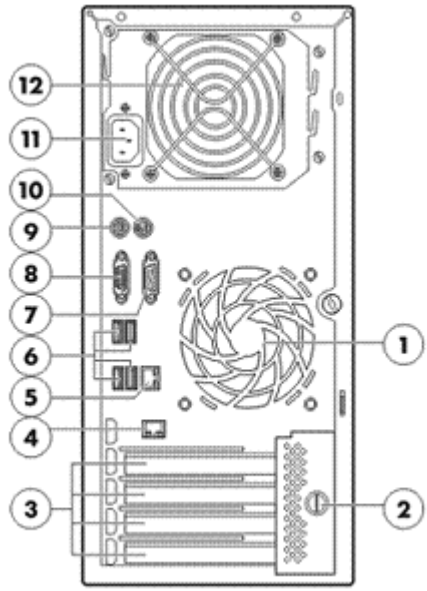
Overview





Front View:

1. DVD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Front Bezel
5. SAS Cable (SAS model only)
6. Hard Drive Controller Card (Optional)
7. System Board
8. HP ProLiant 100 G5 Lights-Out 100c Management Card Port (Optional)
9. System Fan
10. 365W Power Supply

Rear View:

1. Rear System Fan
2. PCI Slot Cover Retainer
3. PCI Slot Covers
4. HP ProLiant 100 G5 Lights-Out 100c Management Card Port (Optional)
5. LAN Port (RJ-45)
6. Rear USB 2.0 Ports
7. Serial Port
8. VGA Port
9. PS/2 Keyboard Port
10. PS/2 Mouse Port
11. Power Supply Outlet
12. Power Supply Unit (PSU) Fan

What's New

The HP ProLiant ML110 G5 is now available with higher performance processors (quad-core up to 3.0GHz and dual-core up to 3.16GHz) resulting in better processing power and increased productivity for the growing businesses.

- Support for Intel® Core™ 2 Duo processor 7000 series
- Support for Intel® Pentium® processor 5000 series

At A Glance

- Processor:
  - Intel® Xeon® processor 3300 series
  - Intel® Xeon® processor 3200 series
  - Intel® Xeon® processor 3100 series
  - Intel® Core™ 2 Duo processor 7000 series

Overview

- Intel® Pentium® processor 5000 series
- Intel® Pentium® processor 2000 series
- Intel® Celeron® processor 400 series

- Memory:
  - 512 MB or 1GB Standard/8GB Maximum of PC2-6400 Unbuffered DDR2 ECC 800 MHz
- Storage Controller:
  - SATA Models: Integrated 6 ports SATA controller with embedded RAID (4 ports available for hard disks)
    NOTE: Transfer rate: 1.5 and 3 Gb/s SATA.
  - SAS Models: HP SC40Ge Host Bus Adapter with RAID 0, 1 support, FIO
    NOTE: When using the SC40Ge with SATA hard drives, 1.5G SATA hard drives are required.
    NOTE: Transfer rate: 1.5 and 3 Gb/s SATA.
- Internal Drive Support:
  - 4 HDD Support:
    - 3.0TB SATA max storage (4 x 750GB HDD)
    - 1.8TB SAS max storage (4 x 450GB HDD)
- Network Controller:
  - Embedded NC105i PCI Express Gigabit Ethernet Server Adapter
- Expansion Slots:
  - Slot 1: PCI 32-bit/33MHz at 3.3V
  - Slot 2: PCI-Express x8 connector with x1 link
  - Slot 3: PCI-Express x8 connector with x1 link
  - Slot 4: PCI-Express x8 connector with x8 link
- " USB 2.0 Ports:
  - 8 Total USB ports
  - 2 Front
  - 4 Rear
  - 2 Internal (one for tape, one for standard USB device)
- Management:
  - Standard Lights Out 100 IPMI 2.0 reporting
  - Optional HP ProLiant 100 G5 Lights Out 100c Remote Management Card
  - Standard HP ProLiant ML110 G5 Easy Set-up CD
- Form Factor:
  - Micro ATX tower (4U)
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair are available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one year warranty. SAS Enterprise drives have a three-year warranty.
    NOTE: Server Warranty includes 1 year parts, 1 year labor, 1-year on-site support with next business day response. (3-1-1 warranty offered in AP only, excluding Japan). Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

Processor One of the following depending on Model	Quad-Core Processors Intel® Xeon® processor X3370 (3.00 GHz, 95W, 1333MHz FSB, 12MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® processor X3360 (2.83 GHz, 95W, 1333MHz FSB, 12MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® processor X3330 (2.66 GHz, 95W, 1333MHz FSB, 6MB) Intel® Xeon® Processor X3220 (2.40 GHz, 95W, 1066MHz FSB, 8MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon ® Processor X3210 (2.13 GHz, 95W, 1066MHz FSB, 8MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Dual-Core Processors Intel® Xeon® processor E3120 (3.16 GHz, 65W, 1333MHz FSB, 6MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® processor E3110 (3.00 GHz, 65W, 1333MHz FSB, 6MB) Intel® Core™ 2® processor E7400 (2.80 GHz, 65W, 1066MHz FSB, 3MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Pentium® processor E5200 (2.50 GHz, 65W, 800MHz FSB, 2MB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Pentium® processor E2160 (1.80 GHz, 65W, 800MHz FSB, 1MB) Single-Core Processors Intel® Celeron® processor 440 (2.0 GHz, 35W, 800MHz FSB, 512KB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Celeron® processor 420 (1.6 GHz, 35W, 800MHz FSB, 512KB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.
Cache Memory One of the following depending on Model	12 MB Level 2 cache - Xeon X3370, X3360 8 MB Level 2 cache - Xeon X3220, X3210 6 MB Level 2 cache - Xeon X3330, E3120, E3110 3 MB Level 2 cache - Core2 E7400 2 MB Level 2 cache - Pentium E5200 1 MB Level 2 cache - Pentium E2160 512KB Level 2 cache - Celeron 440, 420

Standard Features

Chipset	Intel® 3200	
Memory Protection	ECC	
Memory	Type	PC2-6400 unbuffered DDR2 ECC 800MHz
	Standard	512 MB/1 GB
	Maximum	8 GB
Network Controller	Embedded NC105i PCI Express Gigabit Ethernet Server Adapter	

Expansion Slots #	Technology	Bus Width***	Connector Width	Bus Number*	Device Number**	Form Factor	Notes
1	PCI	32-bit	N/A	0	30	Full height slot	33MHz/3.3V
2	PCIe	X1	X8	0	28	Full height slot	
3	PCIe	X1	X8	2	28	Full length, full height slot	
4	PCIe	X8	X8	0	1	Full length, full height slot	

*Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
*** Indicates the number of physical electrical lanes running to a PCI-e connector.
NOTE: PCI-X Interface (PCI 32bit/33MHz compatible)

Storage Controller	SATA Models	Integrated 6 ports SATA controller with embedded RAID (4 ports available for Hard Disks) NOTE: Transfer rate: 1.5 and 3 Gb/s SATA.	
Storage	Optical Drive	SATA DVD-ROM Drive	
	Hard Drives	(SATA Model only)	160GB SATA 7200 rpm Drive
Maximum Internal Storage	Type		
	Non-Hot Plug SATA	3.0TB	(4 x 750GB)

Standard Features

Interfaces	Parallel	0
	Serial	1
	Pointing Device (Mouse, PS2)	1
	Graphics	1
	Keyboard (PS2)	1
	USB 2.0 Ports	8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity)) NOTE: Internal USB ports are optimal for the attachment of HP USB DAT Tape Drives NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html
	Network RJ-45 (Ethernet)	1
	Management	HP ProLiant 100 G5 Lights-Out 100c Remote Management port (Optional)
Graphics	32MB shared supporting 1600 x 1200 x 16M resolution	
Form Factor	Micro ATX Tower (4U)	
Remote Management	Lights-Out 100c	Lights Out LO100c is a Remote Management Card (RMC) for ProLiant 100 series servers that do not have embedded LO100i. The LO100c has all the features of the LO100i Advanced license and allows customers, or their service providers, to remotely manage ProLiant servers over a LAN or the Internet from anywhere, anytime regardless whether the server is located in the same building, across town, or around the globe. With LO100c, users can acquire complete remote control with Virtual KVM (graphical hardware-based, remote console). Users can also access the server's serial console, control system power, update system firmware and software, as well as monitor system environmental conditions. The LO100c remote management card can be accessed from a web browser or command line interface. This virtual "at-the-server" functionality means administrators stay in control of remote HP ProLiant 100 series servers. The HP Lights-Out100c consists of a management processor and firmware that provides cost-effective, entry-level lights-out functionality, basic system board management functions, and diagnostics. NOTE: For more information, please refer to the QuickSpecs for the LO100c found at:: http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html

Standard Features

Core Infrastructure Management	HP ProLiant ML110 G5 Easy Set-up CD	The HP ProLiant Easy Set-up CDs optimize single-server setup, providing a simple way to deploy reliable and consistent server configurations. The HP ProLiant 100 Series Easy Set-up CD ship standard with the ML110 G5. It offers essential single-server deployment tools for HP ProLiant 100 series servers that simplify HP entry server setup, providing a repeatable way to deploy reliable and consistent single-server configurations. The HP ProLiant Easy Set-up CDs assist with the OS installation process by preparing the system for installing "off-the-shelf" versions of Windows operating system software and automatically integrating optimized HP ProLiant server software drivers and utilities. Users enjoy the following benefits: • An easy-to-use, intuitive graphical interface that prepares your system for the OS installation process. • Integration of key server software drivers with assisted installation. • Dependency and validity checks to ensure that all supported ProLiant software can be installed. NOTE: For the latest information about other related software; please visit the HP Insight Control Management Software Portfolio at: http://h18004.www1.hp.com/products/servers/management/ and the HP ProLiant Easy Set-up CD Web site at: www.hp.com/servers/easysetup
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available on a weekly or monthly basis.
	ROMPaq software and latest drivers	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs or downloaded from software and drivers download pages website at: http://www.hp.com/go/support.

Industry Standard Compliance	ACPI V3.0a Compliant PCI 2.3 Compliant PXE Support WOL Support IPMI 2.0 compliance Microsoft® Logo certifications RedHat Enterprise Linux Logo certifications SUSE Linux Enterprise Server Logo certifications USB 2.0
Manageability	Standard Lights Out 100 IPMI 2.0 reporting Optional HP ProLiant 100 G5 Lights-Out 100c Remote Management Card Standard HP ProLiant ML110 G5 Easy Set-Up CD

Standard Features

Security	Power-on password Setup password USB lock
Server Power Cords	6' country specific, lowline NEMA power cord.
Power Supply	365 Watts
System Fans	1 – non-redundant system fan shipped standard 1 – non-redundant CPU heatsink fan shipped standard
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Netware NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/supportos and our driver download page http://www.hp.com/support/ML110G5
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and/or storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers, as well as, the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Standard Features

Service and Support

HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service – Simplify ProLiant solution implementation, maintenance and management.

- Support Service – 3 Year, 9x5 Next Business Day coverage, excluding HP holidays only
- Deployment Service – Hardware Installation only

Enhanced Service – Optimize service level to increase IT performance and availability

- Support Service – 3 Year 13x5 Same Business Day, 4-Hour response coverage
- Deployment Service – Installation and Start-up only

Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays.

For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see "Configuration Information - Factory Integrated Models" section".

SATA Models

HP ML110 G5 X3330 NHP-SATA 495124-xx1	Processor(s)	(1) Intel® Xeon® processor X3330 (2.66 GHz, 95W, 1333MHz FSB, 6MB)
	Cache Memory	6MB (2 x 3MB) Level 2 cache
	Memory	1GB PC2-6400 UB ECC (DDR2-800MHz) (1 x 1GB)
	Storage Controller	HP Embedded 6 Port SATA Controller with Embedded RAID (4 ports for HDD)
	Hard Drive	1 x 160GB 3.5-inch Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 3.0TB (4 x 750GB)
	Optical Drive	Half-Height 16x SATA DVD-ROM
	Form Factor	Micro ATX Tower (4U)
HP ML110 G5 E3110 NHP SATA 533548-xx1	Processor(s)	(1) Intel® Xeon® processor E3110 (3.00 GHz, 65W, 1333MHz FSB, 6MB)
	Cache Memory	6MB (2 x 3MB) Level 2 cache
	Memory	1GB PC2-6400 UB ECC (DDR2- 800 MHz) (1x1GB)
	Storage Controller	HP Embedded 6 Port SATA Controller with Embedded RAID (4 ports for HDD)
	Hard Drive	1 x 160GB 3.5-inch Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 3.0TB (4 x 750GB)
	Optical Drive	Half-Height 16x SATA DVD-ROM
	Form Factor	Micro ATX Tower (4U)
HP ML110 G5 Pentium E2160 NHP-SATA 444809-xx1	Processor(s)	(1) Intel® Pentium® processor E2160 (1.8GHz, 65W, 800MHz FSB, 1MB)
	Cache Memory	1MB (1 x 1MB) Level 2 cache
	Memory	512 MB PC2-6400 UB ECC (DDR2-800MHz) (1 x 512 MB)
	Storage Controller	HP Embedded 6 Port SATA Controller with Embedded RAID (4 ports for HDD)
	Hard Drive	1 x 160GB 3.5-inch Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 3.0TB (4 x 750GB)
	Optical Drive	Half-Height 16x SATA DVD-ROM
	Form Factor	Micro ATX Tower (4U)

Models

Country Code Key	XX=00	NA
	XX=01	Australia (Excluding P/N 533548-xx1)
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=20	Brazil (Excluding P/N 533548-xx1)
	XX=29	Japan (Excluding P/N 533548-xx1)
	XX=37	AP
	XX=42	Euro
	XX=AA	PRC

Configuration Information-Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration

Models	HP ProLiant ML110G5 NHP CTO Chassis	445607-B21
	Factory Integrated Models ship with:	
	Embedded NC105i PCI Express Gigabit Ethernet Server Adapter	
	Keyboard and Mouse NOTE: Keyboard and Mouse option needs to be manually selected for shipment. Please see the USB Options listed in the options selection of this QuickSpecs.	
	Power cord	
	Micro ATX Tower (4U)	
	NOTE: HP SATA drive models are limited to 3.0TB support.	
	NOTE: On SATA models with embedded RAID, setup instructions are located in the User Guide. CTO RAID set-up is not available. HP ProLiant ML100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	Quad-Core Processor	
	Intel® Xeon® processor X3370 (3.00GHz, 95W, 1333MHz FSB, 12MB), FIO	535026-L21
	Intel® Xeon® processor X3360 (2.83GHz, 95W, 1333MHz FSB, 12MB), FIO	493261-L21
	Intel® Xeon® processor X3330 (2.66 GHz, 95W, 1333 MHz FSB, 6MB), FIO	493259-L21
	Intel® Xeon® Processor X3220 (2.40 GHz, 95W, 1066 MHz FSB, 8MB), FIO	455069-L21
	Intel® Xeon® Processor X3210 (2.13 GHz, 95W, 1066 MHz FSB, 8MB), FIO	455068-L21
	Dual-Core Processor	
	Intel® Xeon® processor E3120 (3.16 GHz, 65W, 1333 MHz FSB, 6MB), FIO	492973-L21
	Intel® Xeon® processor E3110 (3.00 GHz, 65W, 1333 MHz FSB,6MB),FIO	464376-L21
	Intel® Core™ 2® processor E7400 (2.80 GHz, 65W, 1066MHz FSB, 3MB), FIO	533838-L21
	Intel® Pentium ® processor E5200 (2.50 GHz, 65W, 800MHz FSB, 2MB), FIO	533836-L21
	Intel® Pentium® processor E2160 (1.8GHz, 65W, 800 MHz FSB, 1MB), FIO	450359-L21
	Single-Core Processor	
	Intel® Celeron® processor 440 (2.0GHz, 35W, 800 MHz FSB, 512KB), FIO	455072-L21
	Intel® Celeron® processor 420 (1.6GHz, 35W, 800 MHz FSB, 512KB), FIO	455071-L21

Configuration Information-Factory Integrated Models

Memory	2 GB Unbuffered PC2-6400 ECC DIMM (1 x 2 GB)	450260-B21
	1 GB Unbuffered PC2-6400 ECC DIMM (1x1 GB)	450259-B21
	512 MB Unbuffered PC2-6400 ECC DIMM(1x512 MB)	450258-B21
Optical Drive	HP Half-Height SATA DVD ROM Kit	447326-B21
	HP Half-Height SATA DVD-RW Optical Kit	447328-B21
Hard Drives (up to 4)	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	SATA Non-Hot Plug 3.5" Entry (ETY) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
	SATA Non-Hot Plug Drives NOTE: The following previous generation of 1.5G SATA Hot Plug hard drives are supported.	
	HP 500GB 1.5G SATA 7.2K NHP 3.5" HDD, FIO	404469-B21
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide)	
	SAS Enterprise (ENT) Drives 3.5" Drives, Non-Hot Plug	
	HP 400GB 3G SAS 10K 3.5" DP NHP ENT	508232-B21
	HP 450GB 3G SAS 15K 3.5" DP NHP ENT	454234-B21
	HP 300GB 3G SAS 15K 3.5" DP NHP ENT	417950-B21
	HP 300GB 3G SAS 15K 3.5" SP NHP ENT	431950-B21
	HP 146GB 3G SAS 15K 3.5" DP NHP ENT	417855-B21
	HP 146GB 3G SAS 15K 3.5" SP NHP ENT	432093-B21
	HP 72GB 3G SAS 15K 3.5" SP NHP ENT	432095-B21

Step 3: Choose Additional Options for Factory Integration

Storage Controller	HP SC40Ge SAS HBA, FIO NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.	449176-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options", please refer to the "Options" sections below.
NOTE: Some options may not be factory integratable. Please contact your local sales representative for additional information.

Core Options

Memory	2 GB Unbuffered PC2-6400 ECC DIMM (1 x 2 GB)	450260-B21
	1 GB Unbuffered PC2-6400 ECC DIMM (1 x 1 GB)	450259-B21
	512 MB Unbuffered PC2-6400 ECC DIMM (1x512 MB)	450258-B21
Optical Drives	HP Half-Height SATA DVD ROM Kit	447326-B21
	HP Half-Height SATA DVD-RW Optical Kit	447328-B21
Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	SATA Non-Hot Plug 3.5" Midline (MDL) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
	SATA Non-Hot Plug Drives	
	NOTE: The following previous generation of 1.5G SATA Hot Plug hard drives are supported. These drives can be purchased as an option, however, are no longer configurable.	
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide)	
	SAS Enterprise (ENT) Drives 3.5" Drives, Non-Hot Plug	
	HP 400GB 3G SAS 10K 3.5" DP NHP ENT	508232-B21
	HP 450GB 3G SAS 15K 3.5" DP NHP ENT	454234-B21
	HP 300GB 3G SAS 15K 3.5" DP NHP ENT	417950-B21
	HP 300GB 3G SAS 15K 3.5" SP NHP ENT	431950-B21
	HP 146GB 3G SAS 15K 3.5" DP NHP ENT	417855-B21
	HP 146GB 3G SAS 15K 3.5" SP NHP ENT	432093-B21
	HP 72GB 3G SAS 15K 3.5" SP NHP ENT	432095-B21
	NOTE: Please see the for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	

Core Options

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Additional Options

Remote Management	HP ProLiant ML100 G5 Lights-Out 100c Remote Management Card NOTE: Supports HP ProLiant DL180 G5, ML110 G5, ML115 G5 and ML150 G5 servers. NOTE: For additional information on Lights-Out 100c Remote Management Card, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12468_div/12468_div.html	445513-B21
Storage Controllers	SAS Controllers	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller NOTE: Supports RAID 0,1,1+0, 5/BBWC. NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.html (Smart Array E200 Controller)	411508-B21
	HP SAS/SATA 4-Port Cable NOTE: The purchase of a SAS Storage Controller requires the purchase of HP SAS/SATA 4-Port Cable (P/N 457692-B21). NOTE: SAS Storage Controllers supports both SATA and SAS drives. NOTE: On SATA models with embedded RAID, setup instructions are located in the User Guide. CTO RAID set-up is not available. HP ProLiant ML100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf	457692-B21
	SAS HBA	
	HP SC44Ge Host Bus Adapter NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. NOTE: Supports RAID 0,1. NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA)	416096-B21
	SCSI HBA	
	HP SC11Xe U320 Host Bus Adapter NOTE: Supports Tape only, no RAID support. NOTE: Recommended HBA for SCSI tape drive connect. NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	412911-B21

Additional Options

Tape Drives	NOTE: Installation of SCSI tape drives in a ML110 G5 model requires SCSI controller kit (PN: 412911-B21).	
	NOTE: For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	DAT USB Tape Drives	
	HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	DAT SAS Tape Drives	
	HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
	DAT SCSI Tape Drives	
	HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
	HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
	HP StorageWorks DAT 160 SCSI Internal Tape Drive	Q1573A
	LTO Ultrium SAS Tape Drives	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
HP D2D Backup System	RDX Removable Disk Backup	
	HP StorageWorks RDX160 Internal Removable Disk Backup System NOTE: 160GB of Disk Storage.	AJ765A
	HP StorageWorks RDX320 Internal Removable Disk Backup System NOTE: 320GB of Disk Storage.	AJ767A
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D2504i Backup System	EJ002A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit NOTE: 2TB of Disk Storage.	EH924A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3TB of Disk Storage.	EH952A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d	

Additional Options

Uninterruptible Power Systems - Tower	**HP T1000 G3 UPS Models**	
	HP T1000 G3 UPS, INTL	AF449A
	HP T1000 G3 UPS, NA/JPN	AF448A
	HP T1500 G3 UPS Models	
	HP T1500 G3 UPS, NA	AF450A
	HP T1500 G3 UPS, INTL	AF451A
	HP T750 G2 UPS Models	
	HP T750 G2 UPS, INTL	AF447A
	HP T750 G2 UPS, JPN	AF446A
	NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html	
	HP T1000 G2 UPS	
	HP T1000 UPS, JPN/TWN	AF404A
	NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12506_div/12506_div.html	
	HP T750 UPS	
	HP T750 UPS, Low Voltage (NA/JPN)	378439-D71
	NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12192_div/12192_div.html	
	HP 1.83m 10A C13 CH Power Cord	AF565A
	HP 1.83m 10A C13 DK Power Cord	AF566A
	HP 1.83m 10A C13 EU Power Cord	AF568A
	HP 1.83m 10A C13 IL Power Cord	AF564A
	HP 1.83m 10A C13 UK Power Cord	AF570A
	HP 1.83m C13 IT/CL Power Cord	AF571A
	HP 2m C13 JPN Power Cord	AF572A
	HP PWR CRD 2.5m 10A C13-ARGENTINA	AF558A
	HP PWR CRD 1.83m 10A C13-CHINA	AF557A
	HP PWR CRD 1.83m 10A C13-UL DOM	AF556A
HP KVM Switch Options	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack NOTE: required for supporting USB peripherals.	AF613A
	NOTE: For additional information regarding KVM Switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm	

Additional Options

Rack Options	Monitor/Utility Shelf	253449-B21
	ProLiant Rack Enabling Kit	417705-B21
USB Options	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	1.44MB External USB Floppy Drive ALL	DC141B
	HP USB 2-Button Optical Mouse ALL	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
Service and Support Offerings (HP Care Pack Services)	**Hardware Services Next Business Day On-Site Service**	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U4433E
	Hardware Services - 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U4434E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	U4435E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	6-Hour Call to Repair, On-Site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4436E
	Hardware Installation	
	Hardware Installation, Electronic	U4444E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

Memory

HP ProLiant ML110 G5 Models

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

SATA Models:
512 MB/1 GB of PC2-6400 DDR2 SDRAM running at 800MHz with ECC capabilities memory installed.

Standard Memory Plus Optional Memory

Up to 6 GB memory is available with the optional installation of 2 x 2 GB + 2 x 512 MB/1 GB PC2-6400 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

Standard Memory Replaced with Optional Memory

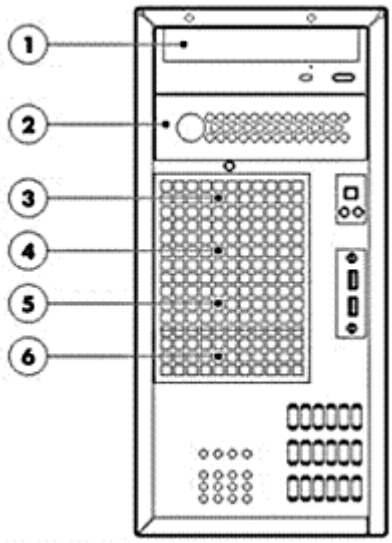
Up to 8GB of memory is available with the removal of the standard 512 MB/1 GB of memory and the optional installation of 4x 2 GB PC2-6400 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

NOTE: The below chart does not represent all possible memory configurations.
NOTE: For best performance, it is recommended that customer installs memory in identical pairs (Slots 1 and 3 are interleaving pair. Slots 2 and 4 are interleaving pair).

Memory		Slot			
		1	2	3	4
Standard	512 MB/1 GB	512 MB/1 GB	Empty	Empty	Empty
Optional	5 GB/6 GB	512 MB/1 GB	2 GB	512 MB/1 GB	2 GB
Maximum	8 GB	2 GB	2 GB	2 GB	2 GB

Following are memory options available from HP:

2 GB Unbuffered PC2-6400 ECC DIMM (1 x 2 GB)	450260-B21
1 GB Unbuffered PC2-6400 ECC DIMM (1 x 1 GB)	450259-B21
512 MB Unbuffered PC2-6400 ECC DIMM (1 x 512 MB)	450258-B21



1	16x SATA DVD-ROM
2	Removable Media Bays (5.25" each)
3, 4, 5, 6	Four Non-Hot Plug Drive Bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
DVD Drive	2	1 or 2	Integrated SATA
DVD-RW Drive	2	1 or 2	Integrated SATA

Hard Drives (SATA Models only)

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SATA Non-Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
750GB 3G 7.2K 500GB 3G 7.2K 250GB 3G 7.2K	Up to 4	3,4,5,6	6 Port SATA controller with Embedded RAID on Motherboard NOTE: Transfer rate: 1.5 and 3 Gb/s SATA

SATA Non-Hot Plug 3.5" Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G 7.2K	Up to 4	3,4,5,6	6 Port SATA controller with Embedded RAID on Motherboard NOTE: Transfer rate: 1.5 and 3 Gb/s SATA

SATA Non-Hot Plug Drives

	Quantity Supported	Position Supported	Controller

Storage

250GB 1.5G 7.2K 160GB 1.5G 7.2K	Up to 4	3,4,5,6	6 Port SATA controller with Embedded RAID on Motherboard NOTE: Transfer rate: 1.5 and 3 Gb/s SATA

Hard Drives (SAS Models only)

SAS - Non-Hot Plug Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
3.5-inch 400GB 3G 10K DP 450GB 3G 15K DP 300GB 3G 15K DP 300GB 3G 15K SP 146GB 3G 15K DP 146GB 3G 15K SP 72GB 3G 15K SP	Up to 4	3,4,5,6	HP 4 Internal Port SAS HBA SC40Ge with RAID (0,1) NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.

Maximum Storage Capacity – SATA/SAS Models

Internal	SATA	3.0TB (4 x 750GB)
	SAS	1.8TB (4 x 450GB)

Tape and Disk-Based Backup

NOTE: Installation of SCSI tape drives in a ML110 G5 model requires SCSI controller kit (PN: 412911-B21).
NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
Internal USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	2	USB 2.0 port	N/A
External USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	External	USB 2.0 port	N/A
Internal SAS Tape Drives DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS	2	HP SC44Ge Host Bus Adapter	416096-B21
External SAS Tape Drives DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS	External	HP SC44Ge Host Bus Adapter	416096-B21

Storage

Internal SCSI Tape Drives DAT 40 DAT 72 DAT 160	2	HP SC11Xe Host Bus Adapter	412911-B21
External SCSI Tape Drives DAT 40 DAT 72 DAT 160	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks RDX Removable Disk Backup System RDX160 RDX320	2	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2504i	External	Embedded Network Controller	N/A

Power Specifications

Part Number	445067-001
Operational Input Voltage Range (Vrms)	100 to 127 and 200 to 240 V auto ranging
Frequency Range (Nominal) (Hz)	50 to 60 Hz

Nominal Input Voltage (Vrms)	100	120	200	230	240
Max Rated Output Wattage Rating	365	365	365	365	365
Nominal Input Current (A rms)	6	N/A	3	N/A	N/A
Max Rated Input Wattage Rating (Watts)	N/A	N/A	N/A	N/A	N/A
Max. Rated VA (Volt-Amp)	600	N/A	N/A	N/A	N/A
Efficiency (%)	>65%	>65%	>65%	>65%	>65%
Power Factor	N/A	N/A	N/A	N/A	N/A
Leakage Current (mA)	N/A	<0.45mA	N/A	N/A	N/A
Maximum Inrush Current (A peak)	N/A	No component was damaged and input fuse shall not blow	N/A	No component was damaged and input fuse shall not blow	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A

	Power **
HP ProLiant ML110 G5 Fully Configured	(see **)
Fully Loaded System output Wattage (W)	365W
Fully Loaded System Input Current (A rms)	6A @ 100V, 3A @ 200V
Fully Loaded System Thermal (BTU- Hr)	1915BTU
Fully Loaded System VA (Volt-Amp)	600 VA
System Leakage with all power supplies loaded (mA)	0.45mA@120V
System Inrush Current with all power supplies loaded (A)	<150A@ 240Vac
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (4) HDDs, (1) DVD-ROM, (4) PCI cards, and (1) power supply.

Power Cords (13 Cord Sets)	Power Cord Part Number
Country	
APD	100614-009, 100613-008, 139867-005, 397138-002 (India)
Brazil	285052-001
Australia	100661-001
Euro	100614-009
France	100614-009
Germany	100614-009
Japan	139867-005
PRC	286496-001
UK	100613-008
US, Taiwan	121565-001

System Unit	Dimensions (HxWxD) (with feet)	14.5 x 6.9 x 16.8 in (36.7 x 17.5 x 42.6 cm)	
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	39 lb (17.5 kg)
		Minimum (one hard drive, power supply, and processor installed)	23.81 lb (10.8 kg)
	Input Requirements (per power supply)	Rated Line Voltage	90 to 132 VAC, 180 to 264 VAC
		Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	600 W (at 100 VAC), 600 W (at 200 VAC)
	Power Supply Output (per power supply)	Rated Steady-State Power	365 W (at 100 VAC), 365 W (at 200 VAC)
		Maximum Peak Power	385 W (at 100 VAC), 385 W (at 200 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when	

		the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		SATA Model	
		Idle	
		LWAd	4.2 Bels
		LpAm	26 dBA
		Operating	
		LWAd	5.1 Bels
		LpAm	34 dBA
		SAS Model	
		Idle	
		LWAd	5.2 Bels
		LpAm	34 dBA
		Operating	
		LWAd	5.7 Bels
		LpAm	40 dBA
	Emissions Classification (EMC)	FCC Rating	Class B
		Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
		NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

HP 160GB 3.0G SATA 7.2K NHP 3.5" ETY HDD 458947-B21	160GB 7,200 rpm	Capacity	160,041 MB	
		Height Maximum drive dimension	1.0 in. (26.1 mm)	
		Width	4.0 in (101.6 mm)	
		Depth Maximum drive dimension	5.787 in (147.0 mm)	
		Interface	Serial ATA	
		Transfer Rate (Maximum)	3Gb/s	
		Native Command Queuing	N/A	
		Seek Time (typical reads, including settling)	Single Track	2.0 ms
			Average	<11 ms
			Full-Stroke	23.0 ms
			Rotational Speed	7,200 rpm

	Physical Configuration	Bytes/Sector	512
		Logical Blocks	312,581,808
	Operating Temperature	41° to 131° F (5° to 55° C)	

16X Max SATA DVD-ROM Disk Drive		Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) CD-R, CD-RW Mixed Mode (Audio and Data combined) DVD-ROM DVD-R/RW, DVD+R/RW CD-R, CD-RW, DVD-ROM, DVD+R, DVD+RW
		Capacity	4.7 GB (DVD-5) 8.54 GB (DVD-9)
	Block Size	DVD Media	2,048 bytes
	Interface	SATA	
	Access Times (typical)	Random	<140 ms
		Full-Stroke	<250 ms
	Data Transfer Rate	Sustained	8100 to 21600 KB/s (6X to 16X)
		Bus Rate	1.5 Gbps
	Cache Buffer	128 KB	
	Start-up Time (typical)	< 7 seconds	
	Stop Time	< 4 seconds	
	Laser Parameters	Type	Semiconductor Laser GaA1As
		Wave Length	780 ± 25 nm
	Operating Conditions	Temperature	41° to 122° F (5° to 50° C)
		Humidity	10% to 90%
	Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (42.9 x 150 x 195 mm)
		Weight	2.64 lb (1.2 kg)

Technical Specifications

HP 4 Internal Port SAS Host Bus Adapter (SAS/SATA HP Model)	**SATA Protocol**	SATA 1.5Gb/s
	SATA Ports	4 internal
	Port transfer rate	1.5 Gb/s total
	Maximum Capacity	up to 3.0TB (4 x 750GB Non-Hot Plug SATA HDD)
	RAID Levels Supported	RAID 1 (Mirroring) RAID 0 (Striping)
	Logical RAID Volumes Supported	2
	Dimensions (excluding bracket)	6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	Architecture	64-bit
	SAS Connectors	1 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
	Data Transfer Method	PCI-Express x8 - 2 GB/s maximum bandwidth
	PCI Bus Speed	PCI-Express x8
	Simultaneous Drive Transfer Ports	1 x4 Wide SAS Connectors
	Port Transfer Rate	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	Software upgradeable Firmware	Yes
	Maximum Capacity	1.2TB (4 x 300GB)
	Memory Addressing	64-bit, supporting servers memory greater than 4 GB
	Logical Drives Supported	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 4 Drives per RAID 0
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	4-MB flashable ROM
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS and 1.5 Gbps SATA

Technical Specifications

HP SC40Ge SAS Host Bus Adapter with RAID	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Logical Drives Supported	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 8 Drives per RAID 0
	Maximum Capacity	3.6TB (8 x 450GB)
	Data Transfer Method	PCI-Express x8 - 2 GB/s maximum bandwidth
	Port Transfer Rate	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	Simultaneous Drive Transfer Ports	2 x4 Wide SAS Connectors
	Protocols	3 Gbps SAS and 1.5 Gbps SATA 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	External SAS Connectors	None
	Internal SAS Connectors	2 internal SFF8484 x4 SAS Connectors
	Upgradeable Firmware	4MB flashable ROM

Embedded NC105i PCIe Gigabit Server Adapter	Network Interface	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM – Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.
	Data Transfer Method	Compliant to x1 PCIe Specification
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s 10Base-T (Full-Duplex) 20 Mb/s 100Base-TX (Half-Duplex) 100 Mb/s 100Base-TX (Full-Duplex) 200 Mb/s 1000Base-TX (Half and Full-Duplex) 2000Mb/s
	Connector	RJ-45 connector
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethemet on standard Category 5 UTP

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.